

# IOWA STATE COLLEGE OF AGRICULTURE AND MECHANIC ARTS

## AGRICULTURAL EXTENSION DEPARTMENT HOME ECONOMICS

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### SUGGESTIONS FOR MEATLESS MEALS

Chemistry reveals the fact that the body is made up of elements such as carbon, hydrogen, nitrogen, phosphorus, chlorine, sulphur, sodium, magnesium, potassium, iron and calcium. The dust of the earth and the elements of the air may be said to be changed into all living things.

In foods these elements are combined to supply such substances as are needed to counter-balance the loss caused by activities of the body. The main object of the study of foods is to teach the individual to understand this balance between the in-take of food and out-put of energy. To keep the human body in good physical condition, foods are needed that contain the elements of which the body is composed.

The fact that a considerable amount of the solids of the body consists of protein, together with the fact that it is the only source of nitrogen makes this class of foods of particular importance. Because of their nitrogen content proteins are sometimes called the nitrogeneous foods. Proteins are extremely complex substances and no very adequate conception of their nature has been gained by chemists up to this time.

The agriculturist knows that plants will not grow without nitrogen and he uses various means to return it to the soil. The individual who tries to build up animal tissue must know that nitrogen is essential to its growth.

#### A Partial Classification of Proteins

- I. Simple proteins—Protein substances which yield only amino acids or their derivatives upon digestive action.
  - A. Albumins—Simple proteins that are soluble in pure water and coagulate with heat.  
Examples: Egg albumen, lact-albumen (milk), serum albumen (blood), leucosin (wheat), legumelin (peas).
  - B. Globulins—Simple proteins that are insoluble in pure water but soluble in neutral salt solutions.  
Examples: Serum globulin (blood), muscle globulin, edestin (wheat, hemp seed and other seeds), phaseolin (beans), legumin (beans and peas), vignin (cow peas), tuberin (potato), amandin (almonds), excelsin (Brazil nuts).
  - C. Glutelins—Simple proteins soluble in very dilute acids and alkalies.  
Example: Glutenin (wheat).
  - D. Albuminoids—Simple proteins derived from the skeleton structure of the animals.  
Example: Collagen, a material which boiled in water yields gelatin.



## II. Conjugated Proteins—

A. Phospho-proteins—Compounds in which phosphorus is in organic union.

Examples: Caseinogen (milk), ovovitellin (egg yolk).

B. Hemoglobins—Compounds with hematin in the protein molecule.

Examples: Hemoglobin of blood.

III. Derived Proteins—The proteins that interest us most are those which result from the process of digestion thru the action of water, dilute acid and enzymes.

In the order of formation they are as follows:

Proteins  
Meta Proteins  
Proteoses  
Peptones  
Peptids  
Amino-acids

The action of digestive agents results in the final breaking down into the simple "building stones" called amino acids. They are spoken of as "building stones" because they are stored away and used in the building of new protein tissue. The digestion of proteins is a complex process and cannot be accomplished except with perfect cooperation between the digestive, circulatory, excretory, respiratory, and nervous systems.

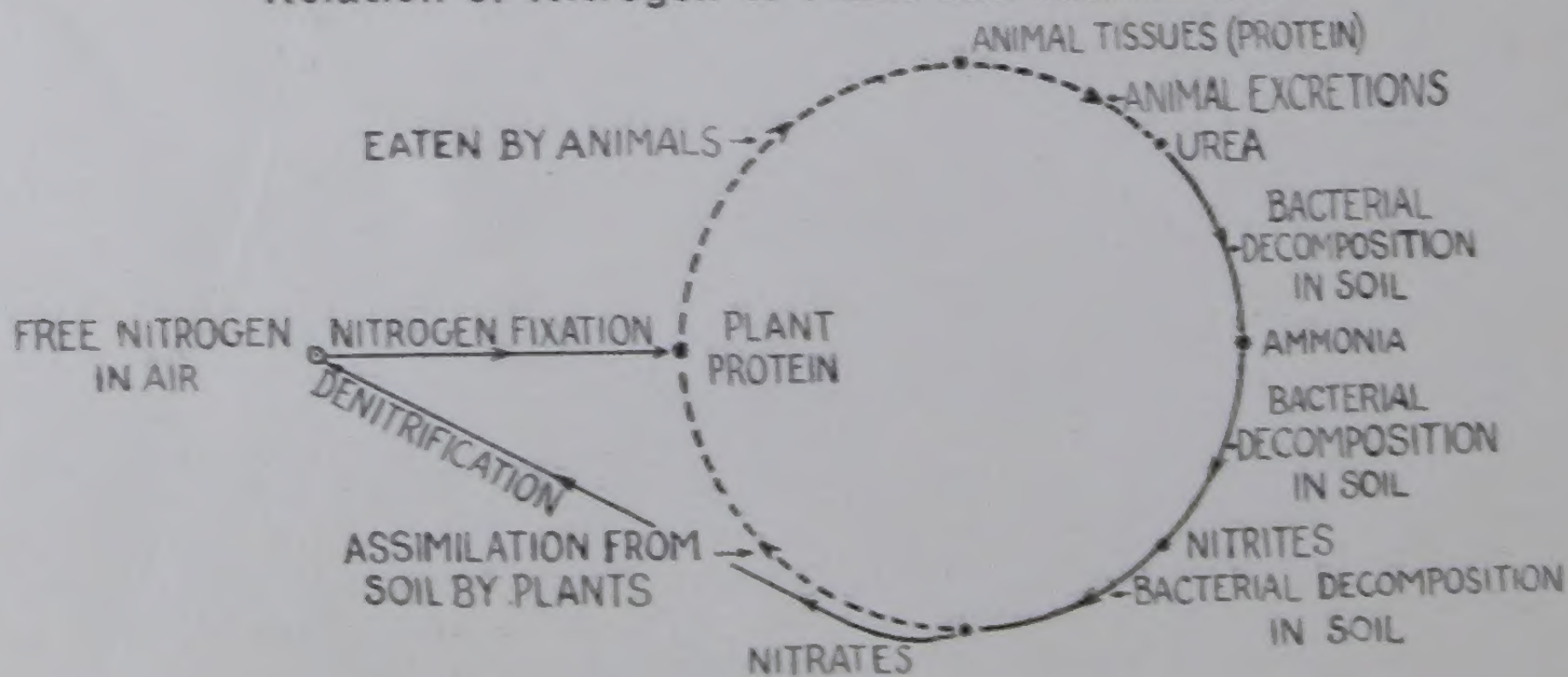
Amino acids are absorbed from the intestinal tract and are carried by the blood to the tissues where they are rapidly absorbed and converted into new tissue by cell activity.

The portion of the amino acids not necessary for tissue building is changed into urea and carbonaceous residues. The urea is excreted and the carbon which remains may be changed so as to yield heat-energy.

Each digested protein produces its own amino acid and each acid has its use in the body. For this reason a mixed protein diet is important.

Some amino acids are produced in the body and consequently need not be especially planned for in the diet. Glycin is one of these. Lysin and tryptophan belong to the class that is essential for growth. Food producing these acids are especially important for growing children, for adults after illness and during pregnancy. Among the foods which produce lysin and tryptophan most abundantly are milk, eggs, meat. Zein from corn is sufficient to sustain the body but not sufficient for growth. For this reason corn and milk make an especially good combination. The same is true of gelatin which is lacking in tryptophan and lysin. Gelatin with milk or eggs makes a nutritious combination.

### Relation of Nitrogen to Plant and Animal Life



The Nitrogen Circle



## COAGULATION OF PROTEIN

### Experiments

1. Add vinegar or acetic acid to milk, note result.
2. Add egg albumen to vinegar, note result.
3. Boil milk and observe changes.
4. Place raw meat in boiling water and note result.
5. Place raw meat in cold water, let stand one hour, note change in water. Strain and heat. Note results.

6. Place egg white on hot pan, note results.

7. Place cheese on hot pan, note results.

Note that all foods become hard and tough when subjected to extreme heat.

An effort should be made to include different protein foods in the diet as a mixture of proteins is considered especially valuable because an abundant supply of the various amino acids is thus assured.

The ages of the persons to be fed, their occupation and state of health, as well as the climatic conditions should be considered when determining the amount of protein in the diet.

### Tunney in Peppers

6 sweet green peppers

4 eggs

$\frac{3}{4}$  c sweet milk

2 c tunney fish

1 c bream crumbs

$\frac{3}{4}$  tsp salt

$\frac{1}{8}$  tsp pepper

Wash the peppers, cut in halves lengthwise, remove seeds and boil until nearly tender. Beat eggs, add milk, fish crumbs and seasoning. Pack mixture into the peppers, cover with toasted crumbs and bake until brown.

### Tunney Loaf

2 eggs

1 c bread crumbs

1 c flaked tunney fish

1 c sweet milk

$\frac{3}{4}$  tsp salt

Onion juice

Pepper

Beat the eggs; add the bread crumbs, flaked tunney fish, sweet milk and seasonings. Bake in a buttered pan 25 minutes. Serve with drawn butter sauce. Garnish with sliced cold boiled eggs and parsley.

### Drawn Butter Sauce

4 tbsp fat

$1\frac{1}{2}$  tbsp flour

$\frac{1}{8}$  tsp pepper

$\frac{1}{2}$  tsp salt

1 c hot water

1 tbsp lemon juice

Melt the fat, add dry ingredients, blend and cook thoroly. Add the water and lemon juice and cook until smooth and glossy.

### Luncheon Eggs

3 hard cooked eggs

1 c white sauce

4 slices toast

Cut eggs in slices, place on slices of buttered toast and pour hot white sauce over.

### Peanut Bread

1 egg

2 c milk

4 c flour

4 tsp baking powder

1 c sugar

1 c salted peanuts (ground)

1 c raisins

Beat eggs, add milk and dry ingredients sifted together. Stir in nuts and raisins and mix thoroly. Pour into a buttered loaf tin, let stand 20 minutes, then bake in slow oven for 40 minutes. Serve same day as baked. Especially good with apple salad.



### Cheese Salad

2 tbsp gelatin  
1 tbsp cold water  
*1 cup* ~~1~~ tbsp boiling water  
1 c cream, whipped  
4 tbsp grated American cheese

Soak gelatin in cold water then dissolve in boiling water. When cooled, fold gelatin into whipped cream and add the grated cheese. Pour into small molds and allow to stand until firm. Serve on lettuce with either a French dressing or mayonnaise.

### PEAS AND BEANS

#### "Poor Man's Beef"

"Fit dainties for ladies, they came so far and cost so dear."  
—Queen Elizabeth's Time.

#### Value in Diet

Rich in carbohydrate.  
Rich in tissue food.  
Supply mineral matter.  
Variety of methods of preparation.  
Inexpensive.

#### Suggestions for Cooking Dried Beans and Peas

Soak thoroly in cold water (about ten hours). Cook at simmering point until skins burst. Thoro cooking is necessary. If water is very hard, add soda. ( $\frac{1}{2}$  tsp to 2 qts water.) Cook uncovered for first half hour.

A cup of cowpeas when soak and cooked will make nearly two and a half cupfuls of peas.

Some varieties used:

Kidney bean  
Lima bean  
Frijole bean  
Cowpea  
Soy bean

Pinto bean  
Navy bean  
Cranberry bean  
Garden pea  
Lentil

#### Baked Kidney Beans and Peas

2 c kidney beans  
 $\frac{1}{2}$  c grated cheese  
1 egg  
1 c bread crumbs  
1 tbsp finely chopped onion  
1 tbsp finely chopped sweet green pepper  
 $1\frac{1}{2}$  tbsp fat  
1 tsp salt  
1 c cooked tomatoes-

Press beans thru a sieve, mix with cheese, beaten egg and crumbs. Cook onion and pepper in fat, but do not brown, add to other mixture. Form in a roll, place in shallow pan, pour tomatoes over the roll and bake in a moderate oven for half an hour.

#### Baked Tomatoes with Beans

Cut the tops from ripe tomatoes and remove the pulp. Add the pulp to the mixture described above (baked beans and cheese.) Salt the inside of the tomato shells and fill with the bean mixture. Bake in a buttered dish until tomatoes are soft.

NOTE: Sweet green peppers may be used instead of the tomatoes if desired.



### Hopping John with Tomato Sauce

1 can kidney beans or  
1 c dried beans cooked  
1 pt rice  
3 tbsp fat  
2 tsp salt

Soak the beans over night in enough water to cover. Cook until tender, adding more water if necessary. Add rice to beans and season with salt and fat. A small piece of beef and pork may be added to the water in which the beans are cooked if desired. Serve

with tomato sauce. Cowpeas or pinto beans may be used in this recipe.

### Tomato Sauce

2 tbsp fat  
2 tbsp flour  
 $\frac{1}{2}$  tsp salt  
 $\frac{1}{8}$  tsp pepper  
1 c stewed and strained tomatoes  
Slice of onion  
 $\frac{1}{2}$  tbsp capers

Melt fat, add dry ingredients and blend thoroly. Cook tomatoes with a slice of onion for a few minutes, then remove onion and add tomatoes gradually to butter and flour. Cook thoroly. Add capers if desired.

### Kidney Bean Salad

1 can kidney beans  
1 c chopped celery  
 $\frac{1}{2}$  c chopped sweet pickels  
 $\frac{1}{4}$  c chopped English walnut  
 $\frac{1}{4}$  tsp salt  
 $\frac{1}{2}$  c mayonnaise dressing

Drain and wash the beans. Add other ingredients and mix thoroly. Serve on lettuce garnished with pimienta olives cut in rings.

### Kidney Bean Succotash

$\frac{1}{2}$  can corn  
 $\frac{1}{2}$  can kidney beans  
1 boiled potato, cubed  
1 boiled carrot, cubed  
1 c milk  
1 tsp salt  
 $\frac{1}{8}$  tsp pepper

Heat vegetables in the milk, add seasonings. Sprinkle with chopped parsley when ready to serve. Butter and milk may be used in place of cream.

### Kidney Beans, Creole Style

1 chopped onion  
2 tbsp fat  
1 c cooked tomatoes  
1 can kidney beans  
 $\frac{1}{2}$  c grated cheese  
 $\frac{1}{8}$  tsp paprika  
1 tsp salt

Cook chopped onion in fat, add tomatoes and one can drained kidney beans. Add cheese, salt and paprika and heat thoroly.

### Baked Lima Beans

1 pt lima beans  
2 tsp salt  
2 tbsp sugar  
1 chopped green pepper  
1 chopped onion  
2 tbsp fat  
1 c tomato sauce

Soak beans over night. Simmer until skins burst. Add salt, sugar, pepper, mustard, fat and onion. Bake in a covered dish (about four hours) and remove cover to brown. Add tomato sauce and serve.

### Curried Lima Beans

1 pt dry lima beans  
2 tsp salt  
4 tbsp butter  
 $\frac{1}{8}$  tsp pepper  
 $\frac{1}{4}$  tsp curry powder

Soak beans over night. Simmer until skins burst, in water to barely cover. Season with salt, butter, pepper and curry powder.

—Dr. Langworthy.



- 1 can lima beans
- 3 tbsp chopped Spanish onions
- 2 tbsp chopped parsley

### Lima Bean Salad

Mix the lima beans, chopped onion and parsley together. Dress with French dressing. Serve on lettuce leaves. Garnish with stuffed olives. Chopped onion, cucumber pickles or chopped green peppers may be added to the French dressing if desired.

- 2 c string beans cut in 1 inch pieces
- 2 c shredded lettuce
- 1 small bottle stuffed olives
- $\frac{1}{2}$  c sour cream
- $\frac{1}{2}$  c mayonnaise dressing

### String Bean Salad

Mix the string beans, lettuce and sliced olives together. Blend the sour cream with the mayonnaise dressing and pour over the salad mixture. Toss lightly together.

- 1 c pea pulp
- 3 eggs
- $\frac{1}{3}$  c bread crumbs

### Sauce

- 2 tbsp fat
- 2 tbsp flour
- $\frac{1}{2}$  c milk or stock
- $\frac{1}{8}$  tsp pepper
- $\frac{1}{2}$  tsp salt

### Pea Souffle

Make sauce of ingredients indicated, add crumbs, pulp and beaten yolks. Fold in beaten white. Bake until firm (about 35 mins.) in moderate oven.

- 1 c cooked peas
- 2 tbsp chopped onion
- 3 tbsp chopped sweet pickle
- 3 tbsp grated cheese
- $\frac{1}{4}$  tsp salt
- $\frac{1}{8}$  tsp pepper

### Adirondack Salad

Mix with cooked dressing, serve on lettuce with grated cheese sprinkled over the top.

### Sandwich Fillings

Pea or bean pulp may be used in sandwich fillings.

Variations in seasoning pulp:

1. Cheese, salt, pepper.
2. Chopped onion, parsley, salt, pepper.
3. Celery, nuts, lemon juice, salt, pepper.
4. Butter, lemon juice, chopped green peppers, salt, pepper.
5. Parsley, pimientos, salt, pepper.

## MENUS

I

Curried Lima Beans  
Tomato, cucumber and lettuce salad  
Whole Wheat Bread  
Prune Whip

II

Bake Cowpeas with Cheese  
Sliced tomatoes  
Brown bread and butter  
Baked apples

III

Hopping John with tomato sauce  
Bread and butter  
Cabbage salad  
Fruit gelatin with cream

IV

Bake lima beans  
Steamed brown bread  
Cabbage salad  
Sliced pineapple  
Cake



### Boston Roast

1½ c cooked kidney beans	Mash beans or put thru a meat grinder. Add
½ c cheese (cottage cheese if desired)	cheese, salt, and enough bread crumbs to form
1½ c bread crumbs	a firm roll. Bake in a moderate oven until
2 tsp salt	brown, basting occasionally with a mixture of
1 tbsp fat to ½ c water	fat and hot water. Serve with catsup or to- mato sauce.

### Peanut Loaf

1 c mashed potatoes	Mix nuts and potatoes. Add beaten egg and
1 c peanuts (chopped fine)	seasonings. Add enough milk to moisten.
1 sgg	Shape into a loaf. Bake in a moderate oven
⅓ c milk (above)	20 minutes.
Salt	
Pepper	

### Salt Fish

Freshen fish by soaking, skin side up, in plenty of water over night. Drain off water and cook fish in water that simmers rather than boils. When fish is done place on platter and pour over melted butter or substitute, or white sauce.

Salt fish may be freshened, bones removed, picked in pieces and served as any left-over meat.

### "Sammies Egg Dish"

3 eggs	Put white sauce in shallow baking dish. Break
1 c white sauce	eggs into dish, sprinkle with salt and pepper.
	Bake in a moderate oven until eggs are set.

If preferred, eggs may be cooked hard, peeled, sliced, and placed in alternate layers with white sauce and finely diced cooked potatoes, the top sprinkled with crumbs and baked until brown.

### Cottage Cheese and Nut Roast

1 c cottage cheese	Cook the onion in the fat and a little water
1 c chopped nuts	until tender. Mix other ingredients and mois-
1 c bread crumbs	ten with the water in which the onion was
2 tbsp chopped onion	cooked. Pour into a shallow baking dish and
1 tbsp fat	brown in the oven.
Juice of half a lemon	
Salt and pepper	

### Codfish Chowder

½ lb salt codfish	Pick over and shred the codfish, holding it
4 c potatoes, cut into small pieces	under lukewarm water. Let it soak while the
2 ounces salt pork	other ingredients of the dish are being pre-
1 small onion, chopped	pared. Cut the pork into small pieces and fry
4 c skim milk	it with the onion until both are a delicate
4 ounces crackers	brown, add the potatoes, cover with water,
	and cook until the potatoes are soft. Add the
	milk and codfish and reheat. Salt, if neces-

sary. It is well to allow the crackers to soak in the milk while the potatoes are being cooked, then remove them, and finally add to the chowder just before serving. This dish serves about six persons.



### Nut Loaf

2 c corn or  
2 c boiled rice  
1 c corn bread or rye  
bread crumbs  
 $\frac{1}{2}$  c milk  
 $\frac{3}{4}$  tsp salt  
 $\frac{1}{4}$  tsp pepper  
1 egg  
 $\frac{1}{2}$  c chopped nut meats  
1 tbsp fat (cotton seed or  
corn oil is advised)

Mix the ingredients together and bake in a loaf. Serve with a lemon fish sauce or tomato sauce.

NOTE: The loaf may be seasoned with celery or sage if desired.

### Welsh Rarebit

1 c white sauce II  
1 c cheese  
 $\frac{1}{8}$  tsp paprika  
 $\frac{1}{4}$  tsp white pepper

Add grated cheese, salt and pepper to the hot white sauce, stirring constantly until the cheese is soft. Serve on dry toast or wafers. One half cup of chopped olives may be added.

### White Sauce No. II

2 tbsp fat  
2 tbsp flour  
 $\frac{1}{2}$  tsp salt  
 $\frac{1}{8}$  tsp pepper  
1 c hot milk

Melt fat, add dry ingredients, blend and cook thoroly. Add hot milk gradually and cook until smooth and glossy.

### Scalloped Oysters and Corn

$2\frac{1}{2}$  tbsp fat  
1 tsp chopped onion  
4 tbsp flour  
 $\frac{3}{4}$  c milk  
1 c cooked corn  
1 c drained oysters  
 $\frac{1}{2}$  tbsp Worcestershire  
sauce  
 $\frac{1}{3}$  tsp dry mustard  
 $\frac{1}{4}$  tsp paprika  
1 egg

Melt fat, add dry ingredients and blend, add onion and corn. Cook until thick, add beaten egg and cook again. Arrange this mixture in a baking dish in alternate layers. Cover the top with crumbs and brown in the oven.

### Corn and Oyster Timbales

1 c oysters  
1 c corn  
 $\frac{1}{2}$  c crumbs  
1 egg  
1 tsp salt  
 $\frac{1}{8}$  tsp paprika  
 $\frac{1}{2}$  tsp chopped parsley

Mix in order given. Fill cups half full and steam or bake  $\frac{1}{2}$  hour.